

**OFFICIAL MEXICAN STANDARD
NOM-008-SCT2/1994
REQUIREMENTS TO BE OBSERVED
IN THE INSPECTION OF RAILROAD CARS.**

1. PURPOSE

The purpose of this Standard is to establish the requirements that must be observed by the personnel responsible for inspecting the railroad cars so as to make certain that the physical operating conditions of these railroad cars are those that are required for ensuring safe transport of hazardous materials and wastes.

2. SCOPE OF APPLICATION

Compliance with this Official Mexican Standard is mandatory for the users, railroad company, and railroad car lessees/lessors, in order to guarantee the safety of the transport of hazardous materials and wastes in railroad cars travelling on railways in Mexico.

3. REFERENCES

NOM-017-SCT2/1993	GENERAL CHARACTERISTICS OF RAILROAD CARS USED TO TRANSPORT HAZARDOUS MATERIALS.
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4. DEFINITIONS

A.A.R. / AAR.- Acronym for the *Association of American Railroads*, of which Mexico, Canada, and the United States are members. The role of the AAR is to standardize the use of technology and procedures applicable in the various operational and administrative areas of railroad companies.

Acoplador / Coupler.- Mechanical device used to connect and keep two railroad cars connected, and which also allows connected railroad cars to be uncoupled by means of a decoupling lever.

Aparejo de Tracción / Draft Gear.- Connecting mechanism between a coupler and the central girder, by means of which the impact resulting from the coupling of railroad cars and the movement of the train is dampened.

Cabezal / Header.- Structural element forming an integral part of the frame, having the function of reinforcing the frame so as to enable it to withstand the effect of a strong impact.

Tapón Cachucha / Cap.- Device used to protect access or entry of piping or tubing installed in a tank car.

Carro Plataforma / Flatcar.- Railroad car with a flat surface, specially equipped to transport trailers, containers, or any other type of heavy equipment or machinery.

Cilindro de Freno / Brake Cylinder.- A metal cylinder in which compressed air acts on the surface of a piston so as to cause the latter to transfer the force of the air to the brake system, which in turn causes the brake shoes to be applied to the surface of the wheels in order brake a vehicle.

Corte de la Unidad del Servicio / Retirement of Car from Service.- The removal from a train of a railroad car which, because of defects or failure, constitutes a danger to the movement of the train.

Depósito Auxiliar y de Emergencia / Auxiliary and Emergency Tank.- Tank installed in a railroad car whose purpose it is to store compressed air coming from the brake line and which is used in for the regular as well as emergency braking of a railroad car.

Freno de Mano / Hand Brake.- A mechanism operated manually by means of a wheel or lever to force brake shoes against the surface of the wheels or a disc surface.

Furgón / Boxcar.- Railroad car made up of a box-like structure used to transport freight requiring protection against inclement weather or storms and equipped with side doors.

Herraje / Hardware.- Array of items used to secure the accessories of a mechanical system installed in a railroad car.

Llave Angular / Angle Valve.- A valve located at each end of locomotives, coaches, and railroad cars to permit or prevent passage of air from the brake line.

Manual de Taller / Office Manual.- Publication of the Association of American Railroads setting forth the rules for the interchange of freight cars and equipment and specifying the inherent responsibilities of the owners and railroad companies when such equipment is damaged or destroyed.

Manual de Taller / Workshop Manual.- Publication of the Association of American Railroads specifying the preventive and/or corrective maintenance work to be done on and for railroad cars.

Rozaderas / Support (Center) Plates.- Lateral support elements that adjust themselves to the body of the railroad car or to the truck as required by the movement of the latter.

Serpentín de Calefacción / Heating Coil.- Spiral shaped tubing used to maintain the required temperature of a product in a tank.

Travesero de Cuerpo / Structural Crosspiece.- Piece of steel joining the center girder to the side girders to adjust the supporting structure of a railroad car.

Truck / Truck.- Low and resistant structure with four or six wheels designed to support the weight of the body of a railroad car.

Válvula de Seguridad / Safety Valve.- Device installed in a tank car to permit automatic regulation of any pressure increases occurring inside the tank.

Yugo / Yoke.- Mechanical device holding together a loader, impact plate, and draft gear used to reduce the stresses of compression and tension during the coupling of railroad cars or movement of the train.

Zapata / Shoe.- Part of the braking system of railroad cars or locomotives, acting by way of friction on the surface of a wheel to control or stop the movement of the wheels.

5. REQUIREMENTS

5.1 All railroad cars used to transport hazardous materials must undergo inspection by specialist personnel of the Department of Railroad Cars of the railroad company in question and, in order to be accepted, must meet the physical and mechanical requirements set forth in the workshop manuals forming part of the Interchange Rules of the Association of American Railroads (A.A.R.).

5.2 The inspection personnel must make certain that the systems and mechanisms of the railroad cars are operating properly and that their structure assures the safety required for transport. The following parts and units of the railroad cars must be inspected in order to verify that:

5.2.1. Frame

- A) The center and side girders exhibit no breaks, cracks, bends, or corrosion indicating danger to the unit.
- B) The structural and auxiliary crosspieces are not bent, broken, cracked, or corroded, and that their friction plates exhibit no wear.

- C) The headers exhibit no breaks, cracks, or wear exceeding the limits set by the A.A.R. Manual of Interchange Rules.

5.2.2. The couplers and draft gear are complete, show no breaks or bending wear, and have all the accessories required for proper operation.

5.2.3. Brake Equipment

- A) The general air line of the train, hoses, angle valves, valves, brake cylinder, and auxiliary and emergency air tanks are complete, operating properly, and have no leaks that will lower their efficiency.
- B) The hub brakes installed have the required capacity and are adapted to work with brake shoes of high-friction composition, and also have safety bearings in good condition.
- C) The hand brake is complete, with all its accessories and connections in good condition and operating properly.

5.2.4. Trucks

- A) The frames, springs, spring cushions, roller bearings, or adapters exhibit no breaks, cracks, patches, wear, or corrosion detrimental to their proper operation.
- B) The roller bearings exhibit no wear or heating and the shafts reveal no fissures, scoring, cracks, or wear on their pins that might jeopardize transportation.
- C) The friction plates have the regulation play and are provided with their appropriate rollers or friction block, and also exhibit no cracks, wear, or bending.
- D) The lubrication devices are operating properly and the lubricant is that specified by regulations and retains all the properties required.
- E) The truck and body center plates exhibit no wear, cracks, play, breaks, bending, patches, or unsuitable measurements that might jeopardize operation of the unit.
- F) The wheels exhibit none of the defects listed in Rule 41, Section F-6, of the A.A.R. Workshop Manual.

5.3 Boxcar Body

- A) The posts, faces, and counterrods exhibit no bending, breaks, structural damage, or corrosion representing a hazard to transportation of materials.
- B) The lining and flooring are intact and exhibit no breaks, corrosion, or any other structural damage, and also the roof exhibits no corrosion or holes allowing leaks into the interior.
- C) The doors are complete with respect to structure and hardware, and are operating properly and exhibiting no breaks, corrosion, or bending that might diminish their proper operation.
- D) The safety devices meet the requirements set by the A.A.R. for guaranteeing the safety of the personnel involved in their operation, such as ladders, ladder rungs, handrails, car steps, and other elements listed in the A.A.R. Shop Manual.

5.4 Tank Cars

Railroad company inspectors must comply with the requirements listed above for railroad cars of this type.

Users and the railroad company must also check to see that the tank and its accessories meet safety requirements, for which purpose the procedure outlined below is to be followed.

U S E R S

- A) Before beginning the inspection to be carried out prior to loading, users must make certain that the structural characteristics of the tank car are compatible with those of the materials to be carried.
- B) All tank cars assigned to transportation of hazardous materials must have a safety valve.
- C) When a car is empty, the vertical distance between the rails and the bottom discharge valve must be no smaller than 10".
- D) Inspection must make certain that there is no leakage from this device. If any leakage does exist, then the loading of a material or substance shall be interrupted.
- E) The outlet valve must have its plug with chain and be in good working order.

- F) There must be plugs or covers at the heating coil inlet and outlet.
- G) The dome covers must have a chain and/or hinges.

USERS AND COMPANIES

- A) Shall check that the safety valve of pressurized tank cars is not bent or broken as of the date of testing. If this valve is bent or broken, then the railroad car must not be loaded.
- B) Shall ensure that the operating pressure of the safety valve is recorded at each end of the car; this pressure must correspond to 75% of the test pressure of the tank.
- C) Shall thoroughly inspect the exterior of the car, making certain that there are no cracks, leaks, or drips, especially in the area where the crosspieces are connected to the tank. If such defects are present, the car must not be loaded.
- D) Shall make certain that the double-casing couplings have no cracks or breaks, and also that the wheels have no cracks, flattened areas, or scaling.
- E) That the gaskets at the filler opening in unpressurized tank cars have no breaks or cracks, duly changing said gaskets in the event of defects in order to prevent any leaks or spills of the product being transported.
- F) That the rupture discs are in good condition in cars equipped with safety valves.
- G) That the distance between the head of the rail and the lower discharge valve is no less than 7" in height when the car is loaded.
- H) Shall make certain that each of the valves used for charging, discharging, steam, measuring, as well as heat sink valves are firmly closed and have their appropriate plugs in place so as to prevent leaks while the train is in transit.
- I) Shall make certain that the placards correspond to the product to be transported and are duly placed at the two ends and sides of the railroad car, verifying that they conform to the information recorded in shipping documents.

5.5 Hopper Cars

It is necessary to make sure that the hatch and gate mechanisms have their full complement of hardware, duly checking their lubrication and proper operation.

5.6 Flatcars

It is to be made certain that flatcars have stake sockets of the dimensions required by the design of the car, as well as complete fastening systems for trailers and containers in perfect operating condition.

5.7 The personnel assigned to inspection yards must make a detailed examination of railroad cars on their arrival at the stations and terminals during their travel, in order to check that the train equipment is in the best possible operating and safety condition.

5.8 Checks made in inspection yards must cover the air brake system and its units and railroad cars, including the entire brake apparatus; the body of the railroad cars, so as to detect possible structural damage or leaks; couplers and hauling devices, so as to make certain that they have a full complement of parts and hardware; and the hand brake, so as to verify that its components and hardware are operating properly.

5.9 Railroad cars whose inspection reveals defects or failures that may jeopardize train operation should be retired from service. If the state of the breakdowns or defects so permits, the railroad cars shall be sent to their owners and/or lessors for repair.

6. PLACARDING [Estencilado]

A check must be made to ensure that all stenciled markings / placards are legible, and in particular that test and expiration dates are valid, as set forth in Rules 70, 80, and 88 of the A.A.R. Workshop Manual.

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